CLAIMS

1. A fuel cell comprising: an anode and an a cathode; an electrolyte layer separating the anode from the cathode; a fuel supply means for supplying fuel to said anode; an air supply means for supplying air to said cathode; and an air purifying apparatus that is provided in an air supply route of said air supply means, wherein said air purifying apparatus comprises a first pollutant-removing means that oxidizes a pollutant in the air and a second pollutant-removing means that adsorbs and removes the pollutant.

2. The fuel cell in accordance with claim 1, wherein said first pollutant-removing means includes a catalyst that oxidizes the pollutant by means of oxygen in the air, and said catalyst has an oxidizing activity with respect to at least one selected from the group consisting of organic substances, nitrogen oxides, sulfur oxides, ammonia, hydrogen sulfide, and carbon monoxide.

3. The fuel cell in accordance with claim 2, wherein said catalyst is at least one selected from the group consisting of Pd, Pt, Ru, and Rh.

4. The fuel cell in accordance with claim 1, further comprising a heating means for heating said first pollutant-removing means, wherein said fuel supply means includes a reformer that reforms gas, and said heating means heats said first pollutant-removing means by utilizing waste heat from said reformer.

5. The fuel cell in accordance with claim 1, further comprising a heating means for heating said first pollutant-removing means and a means for circulating cooling water through said fuel cell to cool said fuel cell, wherein said heating means heats said first pollutant-removing means by utilizing the cooling water which has been heated as a result of heat exchange with the fuel cell.

6. The fuel cell in accordance with claim 1, wherein said first pollutant-removing means includes an ozone generator that generates ozone, and the pollutant is oxidized by the ozone generated by said ozone generator.

7. The fuel cell in accordance with claim 1, wherein said second pollutant-removing means adsorbs and removes the pollutant by means of a porous material carrying at least one selected from the group consisting of permanganates, alkali salts, alkaline hydroxides, and alkaline oxides.

8. The fuel cell in accordance with claim 7, wherein said porous material is at least one selected from the group consisting of activated carbon, alumina, zeolite, and silica.

9. The fuel cell in accordance with claim 1, wherein said first pollutant-removing means includes an ozone generating discharge element that generates ions, as well as ozone, to cause dust in the air to carry an electric charge, a dust collector is provided downstream of said discharge element, and said dust collector carries an electric charge opposite to the electric charge of said dust given by said discharge

element for adsorbing said dust.

10. A fuel cell comprising: an anode and an a cathode; an electrolyte layer separating the anode from the cathode; a fuel supply means for supplying fuel to said anode; an air supply means for supplying air to said cathode; and an air purifying apparatus that is provided on an air supply route of said air supply means,

wherein said air supply means includes a blower for taking outside air into said air supply route, said air purifying apparatus comprising: a dust removal filter located upstream or downstream of said blower for removing dust in said air; an ozone generating discharge element located downstream of said blower for generating ions, as well as ozone, to cause dust in said air to carry an electric charge; a dust collector located downstream of said ozone generating discharge element, said dust collector carrying an electric charge opposite to the electric charge of said dust given by said ozone generating discharge element for adsorbing said dust; and a pollutant-removing means located downstream of said ozone generating discharge element for oxidizing a pollutant in said air by reacting said ozone with the pollutant and for adsorbing and removing the oxidized pollutant.

11. An air purifying apparatus for a fuel cell which is provided on a flow route of air supplied to the fuel cell, said air purifying apparatus comprising a first pollutant-

removing means that oxidizes a pollutant in the air and a second pollutant-removing means that adsorbs and removes the pollutant.

12. The air purifying apparatus for a fuel cell in accordance with claim 11, wherein said first pollutant-removing means includes a catalyst that oxidizes the pollutant by means of oxygen in the air, said catalyst having an oxidizing activity with respect to at least one selected from the group consisting of organic substances, nitrogen oxides, sulfur oxides, ammonia, hydrogen sulfide, and carbon monoxide.

13. The air purifying apparatus for a fuel cell in accordance with claim 11, wherein said first pollutant-removing means includes an ozone generator that generates ozone, and the pollutant is oxidized by the ozone generated by said ozone generator.

14. The air purifying apparatus for a fuel cell in accordance with claim 11, wherein said second pollutant-removing means adsorbs and removes the pollutant by means of a porous material carrying at least one selected from the group consisting of permanganates, alkali salts, alkaline hydroxides, and alkaline oxides.